

REMARKS

The Examiner has rejected claims 1, 2 and 8-10 under 35 U.S.C. 102(b) as being unpatentable over U.S. Patent 4,868,881 to Zwicker et al. in view of U.S. Patent 6,360,187 to Hermann. The Examiner has further rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Zwicker et al. in view of Hermann, and further in view of U.S. Patent 5,509,081 to Kuusama. Moreover, the Examiner has rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Zwicker et al. in view of Hermann, and further in view of U.S. Patent 5,046,105 to Bohn. The Examiner has also rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over Zwicker et al. in view of Hermann, and further in view of U.S. Patent 6,891,954 to Takahashi et al. Furthermore, the Examiner has rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Zwicker et al. in view of Hermann, and further in view of Takahashi et al., and further in view of U.S. Patent 7,006,624 to Philipsson.

The Zwicker et al. patent discloses a method and system of background noise suppression in an audio circuit particularly for car radios, in which an input signal in three separate frequency bands is compared with an environmental noise signal in three respective frequency bands, the resultant signals being used to generate control signals for controlling amplification of the input signal in three respective frequency bands.

The Hermann patent discloses an ambient adjusted volume control for in-vehicles messages.

The Examiner has indicated that Zwicker et al. "fails to disclose a gain dispatcher unit coupled to said input for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification. However, Herman discloses being able to increase gain level until the gain reaches a maximum allowable gain to compensate for surrounding noise (Hermann, col. 4, lines 8-33)."

Applicant submits that while Hermann discloses being able to increase the gain level to a maximum amount, this gain is the maximum available gain of the amplification system. In particular, the noted section of Hermann states:

"One preferred embodiment of closed loop feedback is shown in FIG. 7. A high priority message is played in step 45. During the message playing, a new ambient noise level is measured in step 46. With the added energy from the high priority message being reproduced at the relatively greater sound level, the average ambient level should be increased. A check is made for the expected increase in step 47. The high priority message is detectable if the ambient noise level has increased to the expected amount. If the increase is detected, then nothing further need be done and the method is exited from step 47. If a sufficient increase in ambient noise level is not detectable in step 47, then a check is made in step 48 to determine whether the high priority message signals are already being reproduced at the maximum available gain of the amplification system. If not at maximum gain, then an increase is made to the programmable gain in step 49. In addition, other sound sources under control of the microprocessor may be disabled in order to reduce other contributions to the ambient noise level (e.g., muting the entertainment audio signals). If already at maximum volume in step 48, and if there are no other sources to be disabled, then a visual indication may be made in step 50 to alert the driver either of the actual high priority message content or just that a message was attempted. A graphics display or indicator light could be used for the visual indication."

Applicant submits that while Hermann discloses controlling the gain of the priority message up to the "maximum available gain of the amplification system", there is no disclosure of the claim limitation "allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification". In fact, there is no allocation in Hermann. Rather, all available gain is used for the priority message, and if that is not sufficient, the gains of other sound sources are reduced to make more gain available for the priority message.

As described in the subject specification on page 5, lines 23-26, "If there is not much headroom available, it has to be distributed among the volume, bass and treble amplifications. Otherwise, a volume amplification may be calculated and applied which consumes all available headroom, so that no bass and treble amplification are possible anymore." Further, as described on page 10, lines 23-29, "A similar rationale lies behind the introduction of a gain dispatcher unit 134. Given the amount of headroom, it is arranged to calculate a maximum allowable volume gain GMV, and/or a maximum allowable bass gain GMB, and/or a maximum allowable treble gain GMT, summarized in Eq. 1 as GM. E.g. if the signal can still be amplified 4 times until all headroom is consumed, and the volume gain GV introduces an amplification of 2 times (in addition to the current amplification by the amplification set by the listener on the volume control 130), then there is still a factor 2 to be divided among the bass and treble gain."

Applicant therefore submit that in the combination of Zwicker et al. and Hermann, all available amplification will be use for the priority message, and no consideration being given to reserving (or allocating) a portion of the available gain to amplification in other frequency bands. In particular, Applicants submit that the combination of Zwicker et al. and Hermann neither discloses nor suggest "a gain dispatcher unit for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification".

The Kuusama patent discloses a sound reproduction system, in which a noise level signal "is applied to block 8, wherein it is processed to eliminate changes that are too abrupt from the signal. By such processing, the occurrence of changes that are too abrupt in the gain of the amplifier 2 are prevented. The attack and decay processing of block 8 provides different time constants for reducing the gain of amplifier 2 (attack) and increasing the gain (decay)." While, arguably this may be equated to gain consistency unit of claim 3, Applicant submits that Kuusama does not supply that which is missing from Zwicker et al. and Hermann, i.e., "a gain dispatcher unit for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification".

The Bohn patent discloses an audio signal equalizer having accelerated slope phase shift compensated filters, in which the filter means includes a shelving filter circuit. However, Applicant

submits that Bohn does not supply that which is missing from Zwicker et al. and Hermann, i.e., "a gain dispatcher unit for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification".

The Takahashi et al. patent discloses a vehicle-mounted noise control apparatus in which an active noise control apparatus is included in a motor vehicle.

However, Applicant submits that Takahashi et al. does not supply that which is missing from Zwicker et al. and Hermann, i.e., "a gain dispatcher unit for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification", and "an active noise canceling unit for substantially cancelling environmental noise in a cancellation band of frequencies".

The Philipsson patent discloses a loudspeaker volume range control, in which in a hands-free telephone system, the distance between the microphone and the loudspeaker is determined in order to control the volume of the loudspeaker. However, Applicant submits that Philipsson does not supply that which is missing from Zwicker et al. and Hermann, i.e., "a gain dispatcher unit for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification", and "an active noise canceling unit for substantially cancelling environmental noise in a cancellation band of frequencies".

In view of the above, Applicant believes that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicant believes that this application, containing claims 1-3 and 5-10, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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